POPOV, Yu.P. , kand. fiz.-mat. nauk

Geodetic optical range finders with interference and diffraction light modulators designed by the State Optical Institute. Izv. vys. ucheb. zav.; geod. i aerof. no. 2:55-71 '57. (MIRA 11:7)

1. Gosudarstvennyy opticheskiy institut.
(Geodesy--Equipment and supplies)
(Range finding)

POPOV, Yu. R.V.

SOV/154-58-2-17/22

AUTHOR: Bol'shakov, V. D., Candidate of Technical Sciences

TITLE: Scientific and Technical Conference of the MIIGA i K (Nauchno-tekhnicheskaya konferentsiya MIIGA i K) II

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1958, Nr 2, pp 114-115 (USSR)

ABSTRACT: G. A. Ginzburg, Docent, Candidate of Technical Sciences, spoke
on "The Relations Between Distortions in Cartographic Projec-
tions." L. A. Bogomolov, Candidate of Technical Sciences, re-
ported on "Topographical Deciphering From the Airplane and
Helicopter of Aerial Photographs in Cartographing Inaccessible
Regions." A. S. Tolstoukhov, Assistant, spoke on: "The Relief
Reproduction of Planes on Topographical Maps (Scale
1 : 10 000 000)." G. D. Rikhter, Professor, Doctor of Geograph-
ical Sciences, dealt with the basic geographic structure of
Antarctica and the consequent cartographical peculiarities of
the region.
Engineer Ye. M. Feklistov reported on the conference held in the
MIIGA i K (Moscow Engineering Institute of Geodesy, Aero-
photography, and Cartography) from May 6 to 10. The partici-
pants discussed various questions in relation with the design
of geodetical and cartographical instruments. More than 500
delegates from many universities and scientific institutions,
as well as 82 representatives of different agencies in
Leningrad, Kiyev, Sverdlovsk, and other cities, participated in
this conference. The Deputy Head of the GUGK, M. D. Kon'shin,
read a paper on "Scientific Research in Aerial Camera Design."
S. V. Yeliseyev, Docent, reported on "The Present State of Pro-
duction of Geodetical Instruments, and Development of New In-
struments." F. V. Drobyshev, Professor, gave a lecture on the
construction of photogrammetrical instruments in the USSR and
on developments in this field. In the different sections ques-
tions relating to the design of geodetical and photogrammetrical
instruments as well as instruments for aerial photography were
discussed. Docent S. V. Yeliseyev and Engineer Ye. T. Zdobnikov
reported on geodetic anglemeasuring instruments. Engineer A. V.
Meshcheryakov dealt with the new Marksheyder-instruments. V. M.
Nazarov, Candidate of Technical Sciences, reported on optical
range finders of greater precision, V. A. Velichko, Candidate
of Technical Sciences, on optical range finders of medium accu-
racy. Engineer I. I. Andrianova and Yu. V. Popov, Candidate of
Physical-Mathematical Sciences, spoke on modulators of optical
range finders. Engineer L. V. Rabinovich spoke on the use of
light alloys in the manufacture of geodetical instruments.
Docent S. M. Muravyev and Engineer V. K. Sayenko reported on
new developments in the production of geodetical instruments.
Professor D. Yu. Gal'perin dealt with the optical systems in
geodetical instruments. Engineer A. N. Burago, Engineer B. A.
Shilin, Docent V. A. Krumelis, Docent I. N. Pirson, and Engineer
A. V. Ushakov informed the participants on the results of the
Scientific and Technical Conference held in Kiyev (Planning and
Production of Geodetical Instruments).

Yu.V

Card 1/3

Card 2/3

Card 3/3

BOZHKO, K.F.; KOLBIN, A.M.; POPOV, Yu.P.

Sanitary and hygienic conditions during electric rotary boring of hard rock. Gor.zhur. no.2:73-76 F '64. (MIRA 17:4)

1. Institut gornogo dela AN Kirgizskoy SSR.

PETROV,A.A.; POPOV,YU.P; PUKHNACHEV,YU.V. (Moscow)

"An analysis of free oscillations of a liquid in immovable tanks and Zhoukovsky's potentials by the variational method"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

L 16648-65 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(k)/EWA(h) Pf-4/Peb
AEDC(a)/ASD(a)-5 EM

ACCESSION NR: AP4045712 S/0208/64/004/005/0880/0895

AUTHOR: Petrov, A. A. (Moscow); Popov, Yu. P. (Moscow); Pukhnachev, Yu. V. (Moscow)

TITLE: Calculation of natural oscillations of liquid in fixed containers by the variational method

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 4, no. 5, 1964, 880-895

TOPIC TAGS: natural oscillations, Ritz method, eigenvalue problem, boundary value problem, Laplace equation, liquid oscillation, coordinate function

ABSTRACT: A method is presented for calculating the natural oscillations of an ideal fluid in fixed containers for a wide class of domains τ. (τ is the volume of the liquid in equilibrium.) The solution of this problem is reduced to the solution of the variational problem which consists in determining the function ϕ minimizing a certain functional $F(\phi)$. The use of Ritz method to

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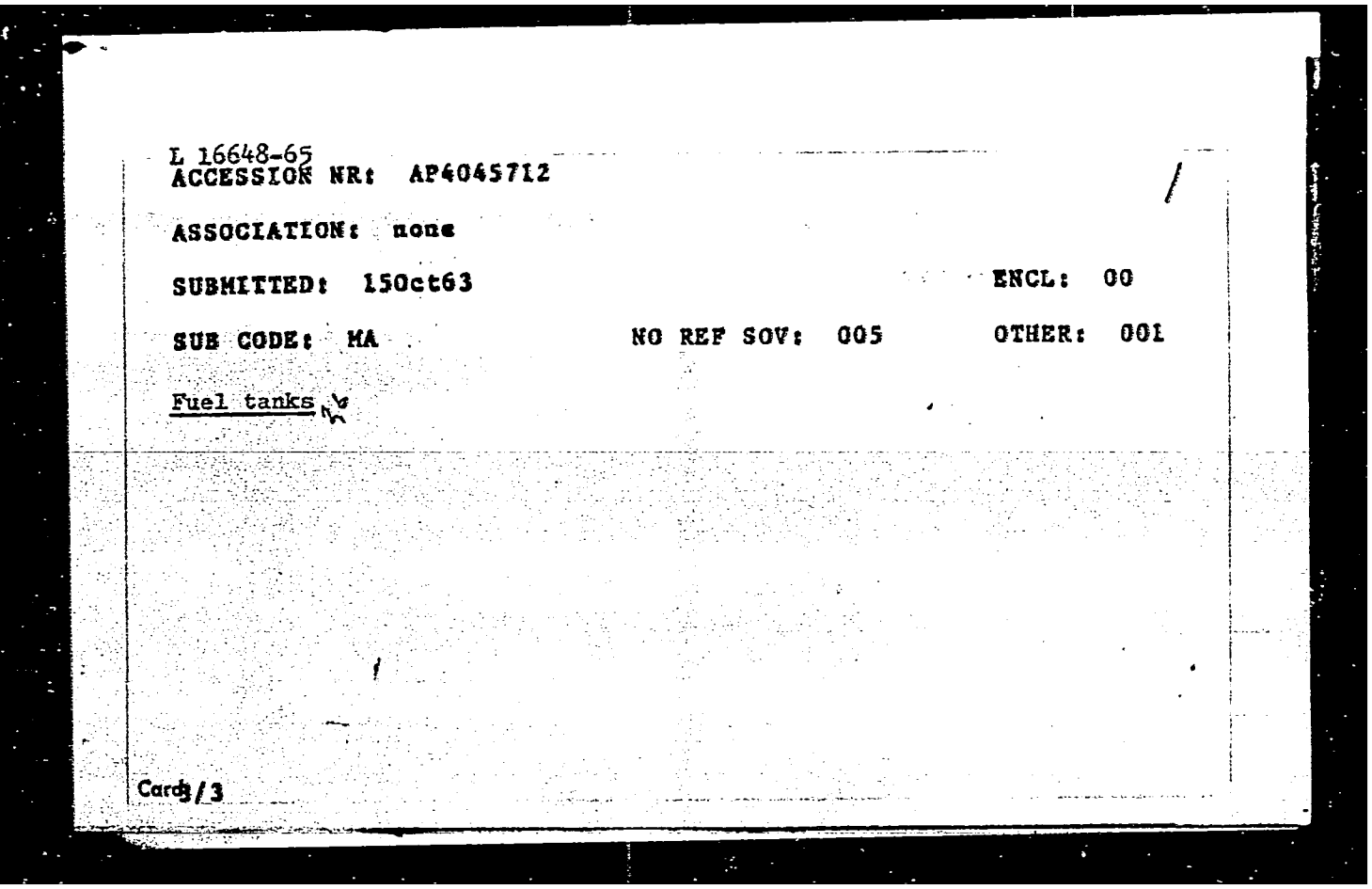
solve this variational problem makes it possible to determine the minimizing function ϕ in the form

$$\varphi = \sum_{m=1}^{N} a_m f_m,$$

where the coefficients a_m are determined from a certain homogeneous system of equations providing that the system of coordinate functions $\{f_n\}$ in the domain τ is known. The method of constructing $\{f_n\}$ is presented based on simple domains (parallelepiped, right cylinder, and others) enveloping the domain τ for which solutions of the problem are known. After the simple enveloping domain with a form closest to the form of the domain τ is chosen, the problem of determining the natural oscillations of the liquid is reduced to the evaluation of certain integrals and the solution of the system of homogeneous equations. The evaluations of the integrals and the solution of the system were carried out on electronic computers. The numerical solution of the problem on natural oscillations of liquids in containers is presented in detail for containers in the shape of a cylinder with a horizontal generatrix, of a right cylinder with a spherical bottom and a spherical upper end cover, and of a torus. Orig. art. has: 19 formulas and 15 figures.



L 16648-65
ACCESSION NR: AP4045712

ASSOCIATION: none

SUBMITTED: 15Oct63 ENCL: 00

SUB CODE: MA NO REF SOV: 005 OTHER: 001

Fuel tanks

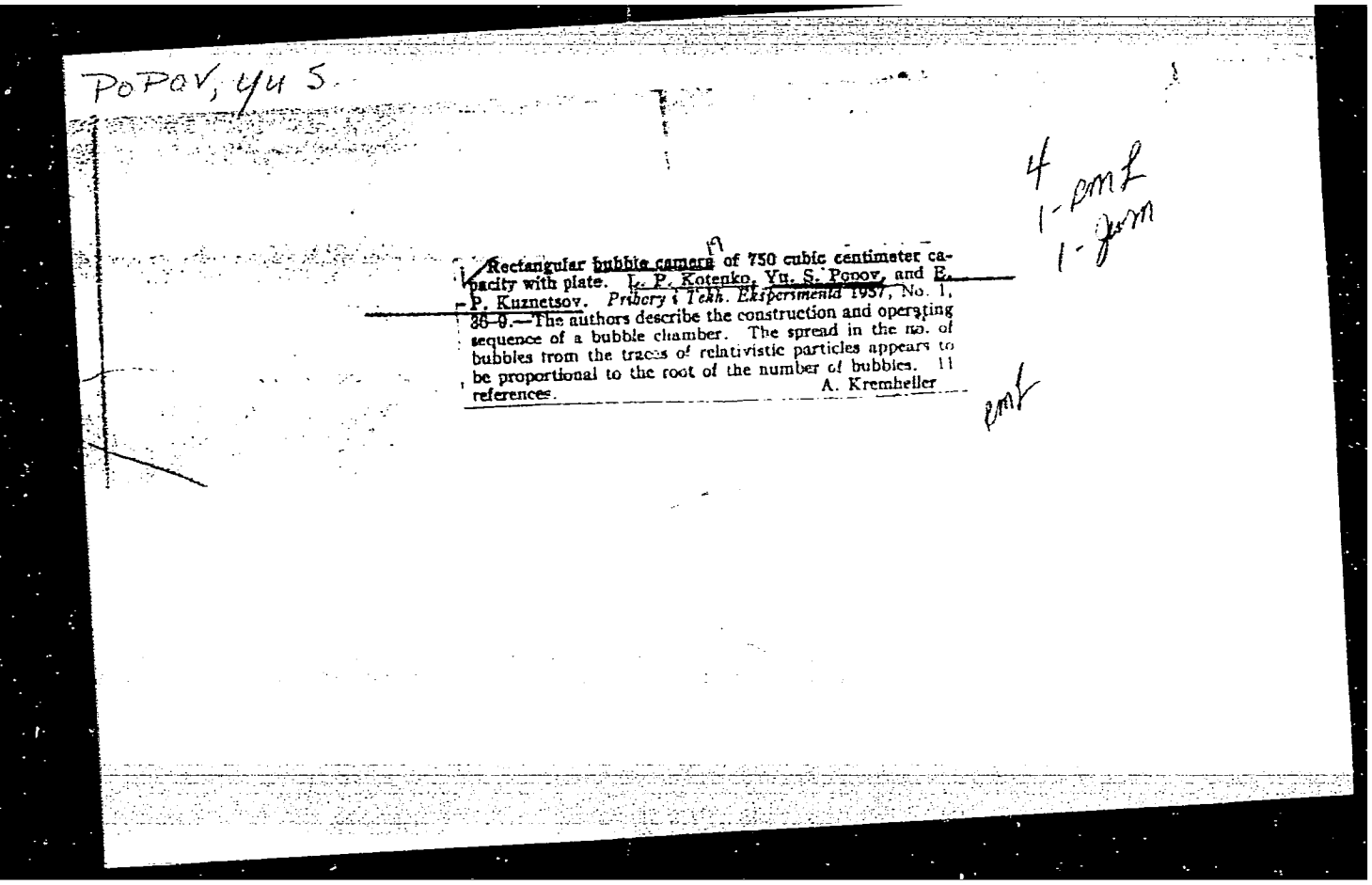
Card 3/3

POPOV, Yu.P.

Calculating the optimal conditions of operations for polishing machines. Der. prom. 14 no.4:12-14 Ap '65. (MIRA 18:5)

KAZARNOVSKIY, M.V., kand. fiz.-matem. nauk; SADIKOV, I.P.; POPOV, Yu.P.

Symposium on explorations by the use of pulsed neutrons held in the Federal Republic of Germany. Vest. AN SSSR 35 no.9: 93 '65. (MIRA 18:9)



POPOV, Yu S.

4
1-cml
1-phm

Rectangular bubble camera of 750 cubic centimeter capacity with plate. L. P. Kotenko, Yu. S. Popov, and E. P. Kuznetsov. *Pribory i Tekh. Eksperimenta* 1957, No. 1, 86–9.—The authors describe the construction and operating sequence of a bubble chamber. The spread in the no. of bubbles from the traces of relativistic particles appears to be proportional to the root of the number of bubbles. 11 references.
A. Kremheller

cml

POPOV, YU. S

KOTENKO, L.P.; POPOV, Yu.S.; KUZNETSOV, Ye.P.

Rectangular bubble chambers with operating volume of 750 cm^3 having plates. Prib. i tekh. eksp. no.1:36-39 Ja-F '57. (MLRA 10:6)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR. (Photography, Particles track) (Ionization chambers)

Popov, Yu S.

56-1-50/56

AUTHORS: Alikhanyan, A. I., Kirillov-Ugryumov, V. G., Kotenko, L. P., Kuznetsov, Ye. P., Popov, Yu. S.

TITLE: The Angular Distribution of Positrons in the $\pi^+ - \mu^+ - e^+$ - Decay in Propane (Uglovoye raspredeleniye pozitronov pri $\pi^+ - \mu^+ - e^+$ - raspade v propane)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 1, pp. 253 - 254 (USSR)

ABSTRACT: The measurements discussed here are also important from the standpoint of the suitability of propane for measurements of the phenomena of angular correlations which are of the same nature as the μ-e-decays. The authors in this connection think of an extensive use of propane bubble-chambers. The test arrangement is illustrated by a figure. A bubble chamber with the volume (7,2 x 6,5 x 16)cm^3 was irradiated in a polyethylene-target with a beam of positive pions with the energy 175 MeV in the phasotron of the United Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy). Altogether 8000 photographs were taken on which 6670 $\pi^+ - \mu^+ - e^+$-decays were determined. The authors determined the angular distribution for the projections of the spatial angles to the plane of the photoplate. The experimentally determined angular

Card 1/2

56-1-50/56

The Angular Distribution of Positrons in the $\pi^+ - \mu^+ - e^+$-Decay in Propane

distribution of the decay electrons is illustrated in a diagram. This distribution can be approximated sufficiently well by a function written down here. The ratio (number of electrons emitted in the angular interval 90 - 180°)/(number of electrons emitted in the interval 0 - 90°) is 1,19. This corresponds to a coefficient $A = -0{,}22 \pm 0{,}03$ in the expression $(1 + A \cos \vartheta)$ for the distribution of the solid angles. The angles in the last-mentioned ratio were related to the direction of the projection of the initial impulse of the positive myons. There are 2 figures, and 5 references, 2 of which are Slavic.

ASSOCIATION: Physical Institute imeni P. N. Lebedev AN USSR (Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR)

SUBMITTED: October 25, 1957

AVAILABLE: Library of Congress

Card 2/2

POPOV, Yu.S.

ALIKHANYAN, A.I.; KIRILLOV-UGRYUMOV, V.G.; KOTENKO, L.P.; KUZNETSOV, Ye.P.; POPOV, Yu.S.

Angular anisotropy in $\Sigma^+ \to \mu^+ + \nu$ decay observed in a propane bubble chamber [with summary in English]. Zhur. eksp. i teor. fiz. 34 no.5:1101-1109 My '58. (MIRA 11.6)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.
(Particles, Elementary--Decay)

ALIKHANYAN, A.I.; KIRILLOV-UGRYUMOV, V.G.; KOTENKO, L.P.; KUZNETSOV, Ye.P.; POPOV, Yu.S.

Angular distribution of positrons in the $\mu^- - e^-$ decay in propane. Zhur. eksp. i teor. fiz. 34 no.1:253-254 Ja '58. (MIRA 11:5)

1.Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.
(Positrons) (Mesons--Decay)

AUTHORS: Alikhanyan, A. I., Kirillov-Ugryumov, V.G., Kotenko, L. P., Kuznetsov, Ye. P., Popov, Yu. S. SOV/56-34-5-8/61

TITLE: The Angular Anisotropy in a $\pi^+ - \mu^+ - e^+$ -Decay, Measured in a Propane Bubble Chamber (Uglovaya anizotropiya pri $\pi^+ - \mu^+ - e^+$ -raspade, izmerennaya v propanovoy puzyr'kovoy kamere)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1101-1109 (USSR)

ABSTRACT: The authors investigated the angular anisotropy in a $\pi^+ - \mu^+ - e^+$ -decay with discrimination of the decay electrons with respect to energy. These decays were recorded by a propane bubble chamber. This chamber was irradiated in a beam of positive pions on the phasotron of the Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research). The positive pions were produced by 660 MeV protons on an external polyethylene target. The authors give a short description of the measuring device. They measured the projections of the solid angles between the momenta of the positive myon and the electron on the plane of the film in the photographic camera. In this case the distribution $dN \sim [1 + a(\pi^2/16)\cos\varphi]\, d\varphi$ is to be used. A figure gives the distributions of the projections of the

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angles between the initial momenta of the positive myon and of the electron for 6670 $\pi^+ - \mu^+ - e^+$ -decays. The experimental distribution is well approximated by the above mentioned formula. The coefficient A, which is found from the relation "(backward/forward)", was equal to $A = -0,22 \pm 0,03$. The results of the measurements discussed in this paper lead to the following conclusions: 1) When the energy of the electrons which are produced in the $\mu^+ - e^+$ -decay increased, also the angular anisotropy increases. This fact is not inconsistent with the theory of the two-component neutrino. The coefficient A in the distribution of the angles between the momenta of the myon and the electron is equal to $A = -0,22 \pm 0,03$. (This coefficient A was found by recording of the $\pi^+ - \mu^+ - e^+$ -decays in a propane chamber). The value of this parameter, averaged over 5 investigations with propane chambers (after taking into account a correction due to the depolarization) is equal to $a = -0,28 \pm 0,03$. This value nearly coincides with the value of the parameter averaged over 9 investigations with photographic emulsions. The mean value of the results of the measurements with propane bubble chambers and with photo-

graphic emulsions is equal to a = -0,283 ± 0,023. The distribution of the angles between the meson momenta in the $\pi^{\pm} - \mu^{\pm}$ decay is isotropic. In an appendix to this paper the relation between the spatial distribution of the angles and the distributions of the projections of the angles upon the planes of the $\mu - e$ -decays and of the $\pi - \mu - e$ -decays is calculated. The authors thank Professor V.P. Dzhelepov who enabled them to carry out their experiments on the phasotron of the Ob"yedinennyy institut yadernykh issledovaniy. Further, the authors thank B.A. Dolgoshein for his valuable discussions; L.A. Kuzin, A.V. Samoylov and F.M. Sergeyev for their participation in the evaluation of the experimental results and A.A. Bednyakov for his help in the experiments at the phasotron. There are 6 figures, 1 table, and 14 references, 4 of which are Soviet.

ASSOCIATION: Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR (Physics Institute imeni P.N. Lebedev, AS USSR)

The Angular Anisotropy in a $\pi^+ - \mu^+ - e^-$ -Decay. SOV/56-34-5-8/61
Measured in a Propane Bubble Chamber

SUBMITTED: December 12, 1957

1. Radioactive substances--Decay 2. Propane bubble chambers --Applications 3. Proton bombardment--Applications

Card 4/4

BELOV, V.P., FOFOV, Yu.S., KOKOLOV, L.S.

Focusing of a deflected cyclotron beam by a magnetic channel.
Prib. i tekh. eksp. 9 no.4:37-38 Jl-Ag '64. (MIRA 17:12)

1. Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri Tomskom politekhnicheskom institute.

PAVLOV, P.V.; ZORIN, Ye.I.; TETEL'BAUM, D.I.; POPOV, Yu.S.

Penetration depth and distribution of radiation damage in germanium due to bombardment with argon and nitrogen ions. Fiz. tver. tela 6 no.11 3222-3226 N '64.

(MIRA 18:1)

1. Gor'kovskiy gosudarstvennyy universitet imeni N.I.Lobachevskogo.

L 15271-65 EWT(d)/EWT(m)/EEC(k)-2/EEC-4/EWP(t)/EWP(b) Po-4/Pq-4/Pg-4/PK-4/
P1-4 IJP(c)/AFWL/BSD/ASD(a)-5/SSD/ASD(p)-3/AS(mp)-2/ESD(gs) JD
ACCESSION NR: AP4048391 S/0181/64/006/011/3222/3226

AUTHOR: Pavlov, P. V.; Zorin, Ye. I.; Tetel'baum, D. I.; Popov, Yu. S.

TITLE: On the depth of penetration and distribution of radiation damage when germanium is bombarded with argon and nitrogen ions

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3222-3226

TOPIC TAGS: germanium, radiation defect, ion bombardment, surface layer, semiconductor material

ABSTRACT: In view of the practical interest associated with the use of ion beams in semiconductor technology, the authors measured the thickness of the inversion layers produced on n-type germanium bombarded with argon and nitrogen ions of energies of 46, 67, and 82 kev. The germanium was in the form of plates 5 x 5 x 1 mm with resistivity of 1 ohm-cm, cut perpendicular to the [111] axis. The plates were care-

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fully ground and chemically polished so that the surface was uniform within 0.2 micron. The ion bombardment was produced in an accelerator with magnetic ion separation. The samples were etched away layer by layer after irradiation and the surface resistivity was measured after each etching by a four-probe method. The results show that for argon the thickness of the inversion layer agrees well with the theory of K. O. Nielsen (Electromagnetically Enriched Isotopes and Mass Spectrometry, New York, 1956, p. 68). The thickness of the inversion layer increases with increasing energy and radiation dose, and is larger for nitrogen ions than for argon ions, although the experimental value is smaller for nitrogen than predicted by theory. The depth distributions of the specific conductivities in the inversion layers were determined and it was established that sufficiently large doses of bombarding argon ions produce on the surface of the inversion layer a high-resistance region whose thickness increases with the dose. It is suggested that this high-resistance layer is due to disordering of the crystal structure of the ger-

L 15271-65
ACCESSION NR: AP4048391

3

manium; this hypothesis is confirmed by electron diffraction data. "Students F. Frolova and S. Shul'ts of the Physics Department of GGU participated in the work." Orig. art. has: 4 figures, 3 formulas, and 1 table.

ASSOCIATION: Gor'kovskiy gosudarstvenny*y universitet im. N. I. Lobachevskogo (Gor'kiy State University)

SUBMITTED: 21Apr64 ENCL: 00 SUB CODE: SS, NP

NO REF SOV: 001 OTHER: 011 ATD PRESS: 3143

Card 3/3

L 11373-65 EWT(m)/EWP(t)/EWP(b) LJP(c)/ESD(gs)/ESD(t)/BSD/SSD/ASD(a)-5/ASD(m)-3/AS(mp)-2/AFWL/ASD(p)-3 JD

ACCESSION NR: AP4041702 S/0181/64/006/007/2017/2021

AUTHORS: Zorin, Ye. I.; Tetel'baum, D. I.; Popov, Yu. S.; Granitsy*na, Z. K.

B

TITLE: Change in the properties of the surface layer of n-germanium following bombardment by nitrogen ions with energy 40 keV 27

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 2017-2021

TOPIC TAGS: germanium, n-type germanium, p-type germanium, radiation damage, lattice defect, radiation effect, ion bombardment

ABSTRACT: The effect of ion bombardment on n-type Ge was investigated in the dose interval 10^{-2}--10^{4} microcoul/cm^2 by measuring not only the rectifying characteristics (which do not yield unambiguous results) but also by using four probes to measure the specific resistivity and by using a thermal probe to determine the thermal emf of the sample. The samples were n-type germanium plates with spe-

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ACCESSION NR: AP4041702

0

cific resistivity 1 ohm-cm, finished by grinding and chemical polishing. The use of four probes made it also possible to determine reliably the dose interval within which a p-n junction is formed. With increasing dose, the changes in the surface-layer properties were found to go through two principal stages. The first consists of accumulation of point defects without disturbing the long-range order of the crystal structure; the n-germanium is gradually converted during this stage into p-germanium. In the second stage the germanium becomes amorphous and the germanium returns to its initial type of conductivity. Two possible amorphization mechanisms are described, and the test results are interpreted from the point of view of present theories of radiation effects in semiconductors. It is pointed out that similar results are obtained by bombardment with argon, so that the nature of the bombarding ion is not of primary significance. Orig. art. has: 4 figures and 3 formulas.

ASSOCIATION: Issledovatel'skiy fiziko-tekhnicheskiy institut Gor'-

L 11373-65
ACCESSION NR: AP4041702

kovskogo gosudarstvennogo universiteta (Research Physicotechnical Institute of the Gor'kiy State University)

SUBMITTED: 20Jan64 ENCL: 02

SUB CODE: EC, SS NR REF SOV: 003 OTHER: 009

Card 3/5

ZORIN, Ye.I.; TETEL'BAUM, D.I.; POPOV, Yu.S.; GRANITSYNA, Z.K.

Variation in the properties of the surface layer of n-germanium bombarded by 40 Kev. nitrogen ions. Fiz. tver. tela 6 no.7:2017-2021 Jl '64. (MIRA 17:10)

1. Issledovatel'skiy fiziko-tekhnicheskiy institut Gor'kovskogo gosudarstvennogo universiteta.

L 8584-65 EWT(l)/EWT(m)/EPA(w)-2/EEC(t)/EEC(b)-2/EWA(m)-2 Pab-24/Pt-10
IJP(c)/SSD/BSD/AFWL/ESD(t)
ACCESSION NR: AP4048495 S/0120/64/000/004/0037/0038

AUTHOR: Belov, V. R.; Popov, Yu. S.; Sokolov, L. S.

TITLE: Focusing of a deflected cyclotron beam by a magnetic channel

B

SOURCE: Pribory* i tekhnika eksperimenta, no. 4, 1964, 37-38

TOPIC TAGS: ion focusing method, deflected cyclotron beam, cyclotron beam focusing, magnetic channel, cyclotron, plane deflector

Abstract: The article describes several ion methods of focusing. Focusing is provided by two steel wedges (klin) located symmetrically with respect to the median plane of the accelerator and forming a magnetic field incremental with respect to the radius. The degree of increment of the field is selected so that the beam diverging with respect to the horizontal will be caused to converge (Figure 1). The device has the following merits: (1) absence of supplementary sources of power supply and supplementary correction of the magnetic field; (2) absence of beam losses at the elements of the channel; (3) smooth regulation within small variations in the direction of the beam and the degree of focusing it without disturbing the

Card 1/2

L 8584-65
ACCESSION NR: AP4048495

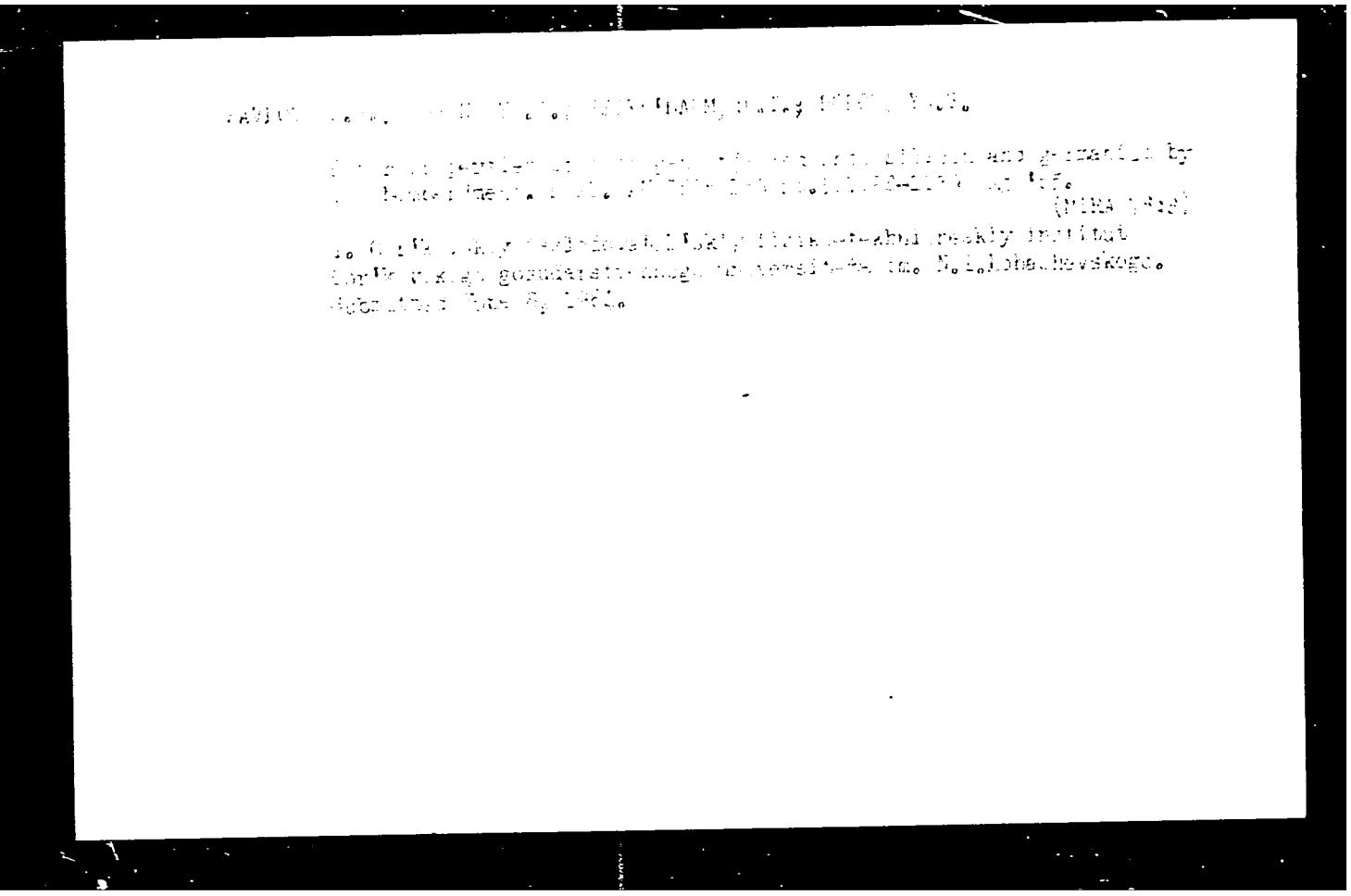
vacuum in the acceleration chamber; and (4) simplicity of design. The work was conducted on a cyclotron with a diameter of the poles of 120 cm. The beam was extracted by a plane deflector. The average intensity of the extracted beam amounted to 20 microamperes. There are two figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki, elektroniki i avtomatiki pri TPI (Scientific Research Institute of Nuclear Physics, Electronics, and Automation, TPI)

SUBMITTED: 27Jul63 ENCL: 00 SUB CODE: NP

NO REF SOV: 002 OTHER: 001 JPRS

Card 2/2



L 15977-66 EWT(1)/EWT(m)/T/EWP(t) IJP(c) JD/AT

ACC NR: AP5021276 SOURCE CODE: UR/0020/65/163/005/1128/1130

AUTHOR: Pavlov, P. V.; Zorin, Ye. I.; Tetel'baum, D. I.; Popov, Yu. S.

ORG: Gorki Physicotechnical Research Institute of the Gorki State University im. N. I. Lobachevskiy (Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut, Gorkovskiy gosudarstvenniy universitet)

TITLE: Donor properties of nitrogen injected into silica and germanium by ion bombardment

SOURCE: AN SSSR. Doklady, v. 163, no. 5, 1965, 1128-1130

TOPIC TAGS: ionizing radiation, nitrogen, argon, ion current, ion density, silica, crystal structure

ABSTRACT: The silica plate samples, having a resistivity of 1 ohm.cm., were cut

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L 15977-66

ACC NR: AP5021276

perpendicular to the crystallographic direction [111] , polished mechanically and chemically to a microscopically smooth surface, and subjected to bombardment by atomic nitrogen ions in an accelerator with magnetic analyzer at an energy of 57 kev. The density of the ion current was ≦ 4 amp./sq.cm. and the vacuum near the target was ~10^{-5} mm.Hg. After irradiation the samples were annealed at various temperatures in a 10^{-5} mm. Hg. vacuum. The n-type layer was formed on irradiated silica surfaces (at the dose range of 50 - 5000 coulomb/sq.cm.) after short annealing (1-3 minutes) at temperatures ≧ 700C, whereas the inversion layer was not observed even after an annealing for 4 hours at temperatures ≧ 500C. The fact that inversion layers were formed only after annealing at sufficiently high temperatures indicated that their generation was affected by the donor properties of the nitrogen. The bombardment of silica plates with argon ions did not result in the formation of inversion layers after subsequent annealing at various temperatures. The bombardment of p-type germanium ($\rho = 1$ ohm.cm.) by nitrogen ions resulted in the formation of n-layers at doses > 1000

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L 15977-66

ACC NR: AP5021276

coulomb/sq.cm. after prolonged annealing at 450C. The annealing at lower temperatures was evidently insufficient for removal of radiation defects. The thermoconversion occured at temperatures ≧ 500C. Orig. art. has: 1 figure.

SUB CODE: 20 SUBM DATE: 06Jun65/ ORIG REF: 001/ OTH REF: 006

Card 3/3

SUB CODE: 20/ SUBM DATE: 20Jul66/ ATD PRESS: 5107

Card 1/1

L 06139-67 EWT(m) IJP(c)

ACC NR: AP6031170 SOURCE CODE: UR/0361/66/000/002/0003/0015

AUTHOR: Nemenov, L. M.; Anisimov, O. K.; Arzumanov, A. A.; Golovanov, U. N.; Yezerskiy, V. F.; Kravchenko, Ye. T.; Kruglov, V. G.; Laktionov, I. A.; Meshcherov, R. A.; Meshcherova, I. V.; Popov, Yu. S.; Prokof'yev, S. I.; Rybin, S. N.; Fedorov, N. D.

ORG: Institute of Nuclear Physics, AN KazSSR (Institut yadernoy fiziki AN KazSSR)

TITLE: Putting the Kazakhstan cyclotron into operation

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 2, 1966, 3-15

TOPIC TAGS: cyclotron, proton accelerator, Mev accelerator, alpha particle / U1502 cyclotron

ABSTRACT: The U-150-2 cyclotron of the Institute of Nuclear Physics of the Academy of Sciences of the Kazak SSR is described. This cyclotron is designed to accelerate protons, deuterons, alpha particles, and multiply charged ions. Energies of 24 Mev are obtained with deuterons. Alpha particles and protons can be accelerated to 48 Mev and 20 Mev, respectively. Sixfold ionized carbon can be accelerated to 140 Mev. The magnetic field in the cyclotron necessary for 20 Mev deuteron production is 14000 oersteds; this is produced by a current of 800 amp. The necessary variation of the magnetic field with radius is obtained by the use of annular shims. The high frequency generator and its alignment is described. The dependence of beam current at various

Card 1/2

L 06139-67
ACC NR: AP6031170

final radii is plotted as a function of the potential between the "dees". The authors thank engineers V. A. Borisov, B. L. Vaysman, N. G. Gladenko, senior electronic engineer D. D. Gromov, chiefs of work shifts G. A. Obraztsov and V. E. Oshkin, and chief of service A. I. Tkachev for participation in the work of setting aright the various difficulties involved in setting up the cyclotron. Orig. art. has: 11 figures.

SUB CODE: 18/ 20/ SUBM DATE: none

Card 2/2 mfc

KONDRASHKOV, Aleksey Vasil'yevich; POPOV, Yu.V., kand.fiziko-matem.nauk, starshiy nauchnyy sotrudnik, red.; KOVAR'KOVA, L.M., red.izd-va; ROMANOVA, V.V., tekhn.red.

[Electrooptical distance meters] Elektrooptricheskie dal'nomery. Moskva, Izd-vo geodez.lit-ry, 1959. 247 p. (MIRA 13:5)
(Range finders)

3(4)

AUTHORS: Popov, Yu. V., Candidate of Physical and Mathematical Sciences, Adrianova, I. I.

SOV/154-59-1-6/19

TITLE: Modulators of the Light (Light Relays) for Phase-optical Range Finders (Modulyatory sveta dlya fazovykh svetodal'nomerov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1959, Nr 1, pp 49-75 (USSR)

ABSTRACT: The requirements put to light relays for optical range finders are pointed out here, and in this connection the most useful modulators for optical range finders are described: the Kerr cell (just mentioned only), the diffraction light relay and the interference modulator of the light are investigated. Among the two possible kinds of light modulation with diffraction of the light by supersonic waves the one is investigated here where a system of stationary waves is obtained in the liquid and the frequency of modulation is twice as high as the frequency of ultrasonics. The mode of operation of the diffraction modulator is investigated with the use of the simplified theory of the diffraction of light by supersonic waves developed by Raman and Nath (Ref 3), and formulas are

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obtained for the dependence of the characteristics of the diffraction modulator on the parameters of the supersonic field. The formula obtained (23) shows that the phase of the light modulation by a modulator with traveling waves also depends on the incidence angle of the rays upon the supersonic grid. Besides, this formula shows that the phase errors caused by the instability of the modulator parameters are half as large for the diffraction modulator with traveling waves as those for the modulator with one reflector. To make use of this advantage and to eliminate the dependence of the modulation phase on the angle of incidence of light, the authors suggest a new method to obtain the stationary supersonic waves by means of two supersonic counterprojectors. These projectors are investigated here. Most useful is the Seignette ceramics made of barium titanate. Its optical examination showed that the frequency of the light modulation can be increased by a diffraction modulator with Seignette ceramic projectors (with a frequency equal to 5 Mcs) at an excitation with the first harmonic oscillation up to 15 megacycles and at an excitation with the third harmonic oscillation up to 30 megacycles. The

experimental investigation of the phase characteristics of the diffraction modulator of the light showed that the constancy of the phases is greatly determined by the homogeneity of the supersonic field. In the modulator with supersonic counterprojectors the distribution of the light-modulation phase is more homogeneous as compared with the modulator with a reflector. - The investigation of the existence of higher harmonic oscillations for the light modulated by the diffraction modulator was carried out here, and the quantitative conditions of them (of the harmonic oscillations) were measured. The investigations showed that this modulator is the most economical one among all existing modulators and can be used for optical range finders with fixed modulation frequencies. - The interference light relay was suggested in 1934 by Academician A. A. Lebedev (Ref 5) on the basis of the two-way interferometer of Michelson. The investigation carried out here shows that the interference modulator is the most economical modulator. To be able to use it within a great field (in optical range finders) it would be necessary to design a construction where only a minimum of adjustments

Modulators of the Light (Light Relays) for Phase-optical Range Finders SOV/154-59-1-6/19

during working is necessary. There are 25 figures and 8 references, 5 of which are Soviet.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S. I. Vavilova (State Optical Institute imeni S. I. Vavilov)

Card 4/4

3(4)

AUTHORS: Popov, Yu. V., Candidate of Physical and Mathematical Sciences, Yarmarkin, K. K., Engineer

SOV/154-59-1-7/19

TITLE: Optical Range Finder With Semiconductor Elements (Svetovoy dal'nomer na poluprovodnikovykh elementakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"-yemka, 1959, Nr 1, pp 77-83 (USSR)

ABSTRACT: Beside optical range finders with high accuracy, such with smaller accuracy are also used in surveying for distances between 2 and 3 km. They must be light and portable. Their accuracy should not be under 1 : 10,000. Among the available modulators of the light for optical range finders of this type the diffraction modulator is preferable as its frequency characteristic permits the use of some discrete frequencies of light modulation. Three variants for a small-distance meter are pointed out: the visual variant, the scheme with a frequency transformer, and the scheme with a phase comparison in the photoelectric receiver. It is shown that the scheme with a diffraction modulator of the light with fixed frequencies of the light modulation and the measurement of the phases after the frequency transformation can be regarded

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as one of the most economical schemes for the building of a small-distance meter. The block diagram of this range finder is given here. This is the simplified circuit diagram of the optical range finder of the GOI (State Optical Institute) (Ref 1). The possibility of using semiconductor elements was investigated in this apparatus. The analysis showed that semiconductor elements can be used for most structural groups. - The frequency of the light modulation is 10 megacycles and 10.5 megacycles. The high-frequency circuits are described. As soon as the semiconductor triodes P401, P402, and P403 will be made by the industry, all high-frequency circuits of the small-distance meter can be built with them. - A ring-shaped phase detector with the diodes D2G is used. The optical scheme of the distance meter is described. The dimensions and weights of the individual parts of the small-distance meter are given. The apparatus permits to measure distances up to 3 km with a relative accuracy of 1 : 10,000. The frequencies of the light modulation applied in the apparatus ensure a single-valued determination of distances up to 300 m. The introduction of a third frequency of 10.025 megacycles offers no principal difficulties and does

not make the circuit diagram more complicated; on the other hand, it permits to extend the range of single-valued distance measurements up to 6 km. There are 4 figures and 8 Soviet references.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S. I. Vavilova (State Optical Institute imeni S. I. Vavilov)

POPOV, Yu.V.

Modulation phase detector with a frequency-mixer tube.
Prib. i tekh. eksp. no.3:77-81 My-Je '60. (MIRA 14:10)

1. Gosudarstvennyy opticheskiy institut.
(Pulse techniques (Electronics))

S/046/60/006/02/02/019
B014/B014

AUTHORS: Adrianova, I. I., Popov, Yu. V., Rotenberg, B. A.

TITLE: Use of Barium Titanate Piezoceramic Materials for Ultrasonic Emission in Diffraction Light Modulators

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 2, pp. 162-170

TEXT: In the article under review, the authors study an ultrasonic emitter for 3-15 Mc/s with a view to its use for high-frequency modulators. The apparatus used to record the frequency characteristic of the emitter is described in the introduction. This apparatus provided the same conditions for the emitter as a light modulator. The authors studied ultrasonic emitters which were shaped like right-angled plates (size: 35·22 mm and 25·22 mm. Thickness: 0.28-1.5 mm). The ceramic material used was commercial T-1700 (T-1700) (95% of $BaTiO_3$ and 5% of Pb_3O_4).

The emitters oscillate both in the fundamental frequency and to odd harmonics. Weak vibrations to the second harmonic were completely avoided in secondary polarization. The frequency characteristics (Fig. 3), the

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dependence of the resonance frequency upon the thickness of the emitter (Fig. 4), the dependence of the frequency characteristic upon the polarizing field strength (Fig. 5), and the effect of the support on the frequency characteristic (Fig. 6) are described in detail. Further, 12 photographs of ultrasonic fields are described (Figs. 7 and 8). In conclusion, the authors state that the material under consideration appears to be particularly suitable for ultrasonic emitters in the frequency range 3-15 Mc/s. Above 6 Mc/s it is necessary to take account of the effect of the silver-plated electrode layer. The emitter is to be polarized successively at field strengths of 10-12 kv/cm and 15-16 kv/cm for 20 minutes. The excitation of the emitter in the resonance frequency and the determination of ultrasonic intensity are also briefly described. The voltages required at the piezoelement for the excitation of various harmonics are given. L. N. Rozina and N. A. Dranovskiy assisted in the experimental studies. The authors thank V. G. Vafiadi for his helpful advice. Publications by I. P. Golyamina (Ref. 6) are mentioned. There are 8 figures and 8 references: 6 Soviet, 1 American, and 1 Canadian.

B

Use of Barium Titanate Piezoceramic Materials for Ultrasonic Emission in Diffraction Light Modulators

S/046/60/006/02/02/019
B014/B014

ASSOCIATION: Gosudarstvennyy opticheskiy institut Leningrad (State Optical Institute, Leningrad)

B

SUBMITTED: April 24, 1959

Card 3/3

86362

S/046/60/006/004/011/022
B019/B056

6.4780

AUTHORS: Adrianova, I. I., Kokurina, M. V., Popov, Yu. V.

TITLE: Composite Broadband Ultrasonic Emitters for Light Diffraction Modulators

PERIODICAL: Akusticheskiy zhurnal, 1960, Vol. 6, No. 4, pp. 495 - 496

TEXT: The composite emitters investigated consisted of individual piezoceramic emitters with different resonance frequencies. The purpose of the present investigation was to obtain the broadest possible band by using such composite emitters. The individual emitters had a thickness of from 0.4 to 0.57 mm and an area of 4.18 mm, and were selected in such a manner that their resonance frequencies in each case differed by 200 - 250 kc/sec. These emitters were successively placed in the path of rays of a diffraction modulator. In the figure, the frequency characteristics of four emitters with the resonance frequencies 5.9, 5.7, 5.5, and 5.3 Mc/sec (curves 1 - 4) are shown together with the frequency characteristics of the composite emitter. It was found that with increasing number of emitters, the frequency characteristic may be increased. An unfavorable effect is

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86362

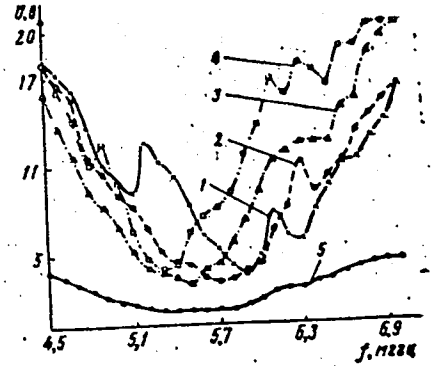
Composite Broadband Ultrasonic Emitters for Light Diffraction Modulators

S/046/60/006/004/011/022
B019/B056

produced only by the increasing capacity of the composite emitter. It is practically possible to extend the frequency characteristic of the emitter with a power output of the generator of 2-3 watts to 1.5 - 2 Mc/sec. There are 1 figure and 1 Soviet reference.

ASSOCIATION: Gosudarstvennyy opticheskiy institut im. S. I. Vavilova, Leningrad (State Optical Institute imeni S. I. Vavilov, Leningrad)

SUBMITTED: April 20, 1960



Card 2/2

83918
S/051/60/009/004/014/034
E201/E191

9.5300

AUTHORS: Adrianova, I.I., Popov, Yu.V., and Lapina, A.V.

TITLE: Amplitude and Phase Characteristics of an Interference Modulator of Light

PERIODICAL: Optika i spektroskopiya, 1960, Vol 9, No 4, pp 501-504

TEXT: The authors describe an interference modulator shown schematically in Fig 1. It is based on the Michelson interferometer. Light from a source S passes through a lens L_1 and is split by a cube K into two beams; one of which proceeds undeflected towards a mirror Q, while the other is deviated towards a mirror M. Both beams are reflected by their respective mirrors and interfere in the middle of K. The mirror Q is mounted on a vibrating piezoelectric plate; vibrations of this plate modulate the light beam which passes through a lens L_2 before leaving the modulator. Such an interference modulator has some advantages compared with the usual Kerr cell and diffraction modulators. Among these advantages are small light losses (not greater than 45%), high luminosity, and cheapness.

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69505

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24.3200

S/020/60/131/04/026/073
B013/B007

AUTHORS: Popov, Yu. V., Adrianova, I. I.

TITLE: A Light Diffraction Modulator With Several Ultrasonic Counter-radiators

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 4, pp 813-816 (USSR)

TEXT: The modulator mentioned in the title has the following advantages over a modulator with reflector: higher economy, improved phase characteristics, and a greater modulation depth than a traveling wave modulator. The latter holds also for fixed frequencies. The simplest type of the modulator described in this paper has two ultrasonic counterradiators, each of which serves as radiator and reflector at the same time. This modulator is efficient if the ultrasonic fields of the counterradiators are homogeneous. The modulator may also contain more than two radiators. The type that has four radiators may be regarded as a modulator with crossed standing ultrasonic waves. In this case the ultrasonic waves of the two pairs of radiators propagate in directions perpendicular to one another. The type of a light relay with a cylindrical ultrasonic radiator corresponds to the limiting case of an infinite number of radiators. For this purpose, a cylinder made of barium titanate is excited on the natural frequency or on the odd harmonics. The width of the frequency

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69505

A Light Diffraction Modulator With Several Ultrasonic Counterradiators

S/020/60/131/04/026/073
B013/B007

characteristics of the radiators made of barium titanate ceramics amounts to ~5% of the fundamental frequency. This permits light modulation within the above-mentioned frequency range and not only on a fixed frequency. Ultrasonic radiators made of barium titanate are excited not only on the first but also on the higher odd harmonics. Voltages of only some volts are sufficient for this purpose. When these radiators are used on higher harmonics it is possible to excite light with frequencies of from 2-3 to 20-30 Mc/sec according to the radiator used. Besides, low-frequency modulation of light is possible if the exciting high-frequency voltage is additionally modulated by a low frequency. The required intensity of ultrasonic waves is attained at lower exciting voltages than is the case with a modulator with reflector. For convenience, the diffraction modulator is filled with such a liquid, in which the ultrasonics propagates but slowly. Moreover, the velocity of ultrasonics in this liquid must have only a low temperature coefficient. The best results are practically obtained with xylene and a 17% solution of ethyl alcohol in aqueous solution. Depth and phase of modulation in a modulator with several ultrasonic counterradiators depend only half as strongly on the velocity and frequency of ultrasonics and on the dimensions of the cuvette, as compared with a modulator with reflector. Moreover, in such a modulator, the ultrasonic counterradiators can

Card 2/3

21192

S/006/61/000/003/001/003
B116/B203

9.5300 (Incl. 2105, 2605)

AUTHORS: Popov, Yu. V., Adrianova, I. I., and Korolev, I. A.

TITLE: Small-size optical range finder of the GDM type combined with a theodolite

PERIODICAL: Geodeziya i kartografiya, no. 3, 1961, 7-13

TEXT: Optical range finders of the ГД(GD) series developed earlier at the GOI made use of the most efficient interference and diffraction light modulators. Later on, the optical system was greatly simplified, thus permitting a combination of the optical system of the range finder with a theodolite. The electric circuit was improved by frequency transformation in a photomultiplier. A model of a small-size optical range finder combined with a theodolite was built on the basis of these improvements. This ГДМ(GDM) range finder was developed to measure long distances and angles, and is described in the present paper. It makes use of a diffraction light modulator with several ultrasonic transmitters (Ref. 7, footnote on p. 7: Yu. V. Popov, I. I. Adrianova. Difraktsionnyy modulyator sveta. (diffraction light modulator). Author's certificate no. 124467.). Fig. 1 shows the path of

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Small-size optical ...

rays in the modulators used in GD range finders. Fig. 2 presents a diagram of the GDM optical range finder. The optical system of the light modulator consists of only three elements: the source of light S, the objective L_1, and the modulator M. The optical system is attached as a block above the telescope of a ТБ-1 (TB-1) theodolite. The telescope also serves to receive light for the range finder. In the focal plane of the telescope, there is a Д(D) iris diaphragm from which the light beam passes to the eyepiece and, through prisms P_2 and P_3, to the cathode of the ФЭУ-17 (FEU-17) photoelectron multiplier. The latter is attached below the theodolite telescope. Thus, the theodolite remains unchanged, and the optical range finder is only an attachment. Only the eyepiece of the theodolite is modified by introducing the iris diaphragm. The beginning of the scale of the phase shifter is determined in the GDM instrument (as in the GD instrument) by means of the so-called system of initial reading. A characteristic of phase measuring circuits is the demodulation of the signal in a modulation phase detector (Ref., footnote on p. 10: Yu. V. Popov. Modulyatsionnyy fazovyy detektor na smesitel'noy lampe. (Modulation phase detector with mixer tube). "Pribory i tekhnika eksperimenta", 1960, no. 3) after amplification and filtration of the signal. This circuit is highly immune against interference; therefore,

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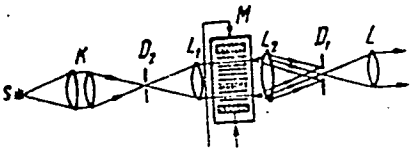
Small-size optical ...

the GDM optical range finders can be used during day and night. Tests of frequency transformation in the FEU-17 showed an efficient frequency transformation not only with a transformer coupling of the heterodyne with the feeding circuits of the emitters but also with a capacitive coupling (Fig.2). In this case, the phase measuring circuit is greatly simplified, and the amplifier stages of the heterodyne may be set up at a long distance from the photoelectron multiplier. Three fixed frequencies (nearly 20 Mc/sec, intermediate frequency 250 kc/sec) are used in the range finder. The phase measuring circuit is attached, as a separate block, to the tripod together with the theodolite. The range finder is fed by a storage battery (6 v) via semiconductor rectifier (in the phase measuring block). Total power consumption is 30 w, the total weight, 38 kg. There is no minimum range of measurement. The maximum range measured by day with the GDM was 2.4 km. The root mean square error of one reading is $\pm$22 cm. 30 readings should be made in measuring distances, requiring no more than 1 hr. There are 4 figures, 1 table, and 8 Soviet-bloc references.

Fig 1



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Small-size optical ...

Legend to Fig. 2: Block diagram of the GDM optical range finder. (1) First order, (2) zeroth order, (3) photoelectron multiplier, (4) amplifier of the generator, (5) generator, (6) heterodyne doubler, (7) heterodyne, (8) mixer 250 kc/sec, (9) amplifier 250 kc/sec, (10) phase shifter, (11) phase modulator, (12) phase detector, (13) sound generator, (14) synchronous detector.

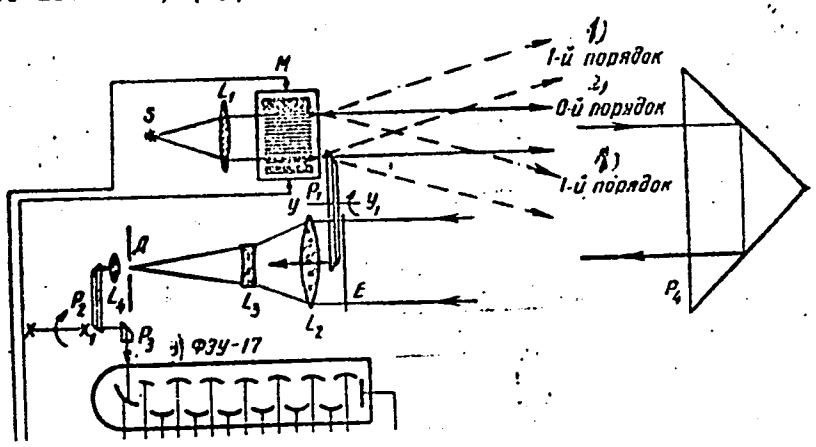

Fig. 2

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POPOV, Yu.V.

Using double heterodyning in producing high-frequency voltage with an adjustable phase. Prib. i tekh. eksp. 6 no.2:115-116 Mr-Ap '61. (MIRA 14:9)

1. Gosudarstvennyy opticheskiy institut.
(Voltage regulators)

RAKSHA, M.A.; POPOV, Yu.V.

Reaction of tetrafluoroethylene with piperidine. New method of obtaining difluoroacetic acid. Zhur. ob. khim. 34 no.10:3465-3467 O '64. (MIRA 17:11)

POPOV, Yu.V.

Performance of the d - c-operated mercury-quartz tube SVD-120A.
Zhur. prikl. spektr. 3 no.5:469-470 N '65.
(MIRA 18:11)

L 61824-65 EWT(1)/EWT(m)/EWG(m)/T/EWP(t)/EEC(b)-2/EWP(b) Pt-4 IJP(c)
RDW/JD/GG
ACCESSION NR: AP5017908 UR/0051/65/019/001/0142/0143
548.0:535
27
26
B

AUTHOR: Adriancva, I. I.; Dreyden, G. V.; Dubenskiy, K. K.; Popov, Yu. V.; Sokolov, V. A.

TITLE: Electro-optical effect in ZnSe crystals

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 142-143

TOPIC TAGS: electrooptical effect, zinc selenide, synthetic crystal

ABSTRACT: The authors report that they observed the electro-optical effect in ZnSe crystals synthetically grown from a melt under pressure (Optiko-mekhanich. promyshl. no. 5, 29, 1962). A noticeable electro-optical effect was previously observed only in CuCl and ZnS crystals, which are not encountered in nature in large sizes and which are difficult to grow artificially. An x-ray structural analysis of the grown crystals has shown that they have a cubic structure with the (110) plane perpendicular as a rule to the growth axis. Photographs illustrating the behavior of the crystals in an electric field are presented. Since the crystals obtained so far were not optically isotropic, the electro-optical coefficients were not determined. It can be assumed, however, that these coefficients are not lower than in ZnS. An optical transmission test showed these crystals to be transparent at wave-

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L 61824-65
ACCESSION NR: AP5017908

lengths exceeding 0.5 μ. The electro-optical properties make ZnSe a promising material for use in optical modulators and light shutters. "The authors thank V. A. Shamburov for consultations." Orig. art. has: 2 figures. [02]

ASSOCIATION: none

SUBMITTED: 26Dec64 ENCL: 00 SUB CODE: SSOP

NO REF SOV: 003 OTHER: 001 ATD PRESS: 4059

Card 2/2

L 64005-65 EWA(k)/FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/EWP(t)/T/EEC(b)-2/EWP(k)/EWA(h)/
EWA(m)-2 SCTB/IJP(c) WG/GG/WH

ACCESSION NR: AP5019773 UR/0051/65/019/002/0307/0310
621.378.325+534.321.9

AUTHOR: Adrianova, I. I.; Popov, Yu. V.; Terent'yev, V. Ye.

TITLE: Generation of giant pulses in a ruby laser by means of a traveling ultrasound wave diffraction modulator

SOURCE: Optika i spektroskopiya, v. 19, no. 2, 1965, 307-310

TOPIC TAGS: ruby laser, pulsed laser, giant pulse, pulse switching, pulse modulation, diffraction modulator, traveling wave modulator, passive switching, xylene

ABSTRACT: A light diffraction modulator, described previously by I. I. Adrianova (Optika i spektroskopiya, 12, 99, 1963), was used as an optical switch for enhancing the power output of a ruby laser. The emission from the laser, having passed through the switch, which was placed between the ruby and one of the external mirrors of the resonator, was diverted from the normal direction to the mirror as the result of diffraction by traveling ultrasound waves. At a sufficiently high intensity of ultrasound, the diffraction of light leads to the disturbance of the laser action. At the instant the ultrasound excitation was discontinued, the switch opened to restore the laser action. A block diagram of the experimental setup is shown in

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L 64003-65

ACCESSION NR: AP5019773

Fig. 1 of the Enclosure. The ruby laser consisted of a crystal 6.5 mm in diameter and 65 mm long. The diffraction modulator container was filled with xylene. The energy of the uncontrolled laser pulse was 0.13 j for a pumping energy exceeding the threshold value 1.5 times. The introduction of the diffraction modulator into the interferometer changed neither the generation threshold nor the value of generated energy (within an accuracy of 10%). The generation losses due to controlling were ~30%. The discussion of the variation of switching speeds, switching times, and modulation of the h-f (5 Mcs) switch supply voltage by a square 10-μsec pulse is implemented by oscillograph photographs. To increase the threshold value of pumping energy when the switch is closed, several traveling waves, particularly the mutually perpendicular ones, can be used. In the case of uncontrolled generation, pumping can exceed the threshold value by as much as 2.6 times. A pulsed ruby laser which develops 1.4 j during free generation was capable of generating ~7-Mw pulses when controlled by the switch. Orig. art. has: 3 figures. [YK]

ASSOCIATION: none

SUBMITTED: 18Feb65 ENCL: 01 SUB CODE: EC,GP

NO REF SOV: 002 OTHER: 000 ATD PRESS: 4057

Card 2/3

L 64005-65

ACCESSION NR: AP5019773 ENCLOSURE: 01

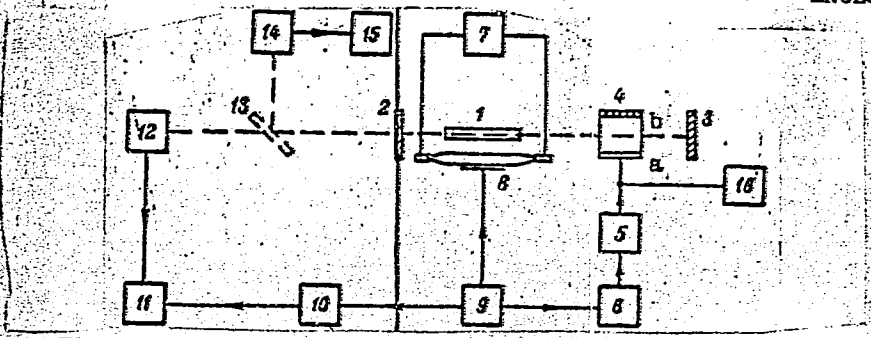

Fig. 1. Block diagram of the experimental setup

1 - Ruby crystal 6.5 mm in diameter, 5 mm in length; 2, 3 - plane interferometer mirrors; 4 - diffraction modulator container filled with xylene; 5 - h-f oscillator with modulator; 6 - delay line; 7 - pumping lamp supply; 8 - rod-type pumping lamp with reflector; 9 - starter; 10 - delay starter for oscillograph scanning; 11 - pulsed oscillograph; 12 - photomultiplier; 13 - semitransparent mirror; 14 - vacuum calorimeter; 15 - microammeter; 16 - cathode voltmeter; a - radiator; b - absorber.

Card 3/3

L 27376-66 FBD/EWT(l)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c) WG/WH

ACC NR: AP6015444 SOURCE CODE: UR/0051/66/020/005/0924/0926

AUTHOR: Adrianova, I. I.; Popov, Yu. V.; Terent'yev, V. Ye.

60
B

ORG: none

TITLE: An experimental study of control of generation of a ruby laser by means of a modulated traveling ultrasonic wave diffraction modulator

SOURCE: Optika i spektroskopiya, v. 20, no. 5, 1966, 924-926

TOPIC TAGS: laser, solid state laser, ruby, coherent light, modulation, light modulation

ABSTRACT: The possibility of modulating a laser beam by an ultrasonic wave in a diffraction modulator placed between the ruby rod and the external mirror of an interferometer is experimentally investigated. In such an arrangement, modulation would be achieved by modulating the ultrasonic wave so that as a result of diffraction the laser beam would be periodically deflected from the direction normal to the mirror. The output power of the laser was 0.13 j. The presence of the xylene-filled modulator (in the absence of the ultrasonic wave) did not change the oscillation threshold or the power output of the laser. The modulating frequency of the ultrasound was 20—200 kcps and its intensity was such that the intensity of light in the zero-order maximum was 35, 25, and 5% of the maximum in the absence of ultrasound. In the absence of the ultrasonic waves the laser pulse exhibited irregular amplitude

Card 1/2 UDC:N 621.375.9:535

L 27376-66

ACC NR: AP6015444

and repetition rate. Generation controlled by ultrasonic waves was characterized by a higher density of relaxation packets with respect to the repetition period and the amplitude. At a constant modulation frequency the number of relaxations per packet and the duration of the packet decreased and the amplitude of the relaxations increased with increasing intensity of ultrasound. At a constant intensity of ultrasonic waves the number of relaxations per packet and their duration decreased with increasing modulation frequency until at some high frequency some of the packets were not generated. At a constant modulation frequency of the ultrasonic wave the energy of the modulated light decreases with increasing intensity of the ultrasound by 10—50%. Similar results were obtained using a l-j laser. Orig. art. has: 2 figures. [CS]

SUB CODE: 20/ SUBM DATE: 18Feb65/ ORIG REF: 002/ ATD PRESS: 4259

Card 2/2

L 47030-66 EWT(d)/EWT(m)/EWP(e) WH

ACC NR: AP6030177 SOURCE CODE: UR/0237/66/000/008/0022/0024

AUTHOR: Adrianova, I. I.; Zaslavskaya, V. R.; Popov, Yu. V.

ORG: none

TITLE: Broadband interference light modulator with piezoelectric-ceramic mirrors

SOURCE: Optiko-mekhanicheskaya promyshlennost', no. 8, 1966, 22-24

TOPIC TAGS: interference light modulator, laser application, piezoelectric ceramic/ TsTS-19 ceramic

ABSTRACT: This is a continuation of an earlier theoretical and experimental study (Optika i spektroskopiya v. 9, 1960, no. 4, p. 501) of the modulation of the light beam by an interference modulator. The present article describes a modulator whose bandwidth has been increased to 5 - 7 MHz (compared with ~1 MHz earlier) by replacing the piezoelectric crystal mirrors with polarized piezoelectric ceramics (TsTS-19). The construction of the interferometer, which is similar to the standard Twyman-Green design, is described. The instrument was tested both under continuous and pulsed conditions in modulation of light from an He-Ne laser (632.8 nm). The obtained static characteristic is such that pulsed modulation with approximate depth of 80% can be obtained at control pulse amplitude 150 - 170 v. When 1-μsec pulses are applied to both mirrors simultaneously in such a way that they are moved in opposite directions, a modulation depth of 85% can be attained at 130 volts. The modulator power consumption is less than one watt and the optical losses reached 70%, owing to the poor

Card 1/2 UDC: 621.378.33: 621.376

Card 2/2

ACC NR: AP7002721 SOURCE CODE: UR/0237/66/000/012/0013/0016

AUTHOR: Adrianova, I. I. (Candidate of sciences); Popov, Yu. V. (Candidate of sciences); Terent'yev, V. Ye. (Candidate of sciences)

ORG: none

TITLE: The regular generation of a ruby laser switched by a standing-wave diffraction modulator

SOURCE: Optiko-mekhanicheskaya promyshlennost', no. 12, 1966, 13-16

TOPIC TAGS: ruby laser, Q switching, diffraction modulator, xylol, carbon tetrachloride, ultrasonic modulation

ABSTRACT: This article is a continuation of an earlier study (Optika i spektroskopiya, 20, 1966, 924) on the modulation of a laser beam by an ultrasonic wave in a diffraction modulator. The present experiments were carried out using modulated standing-wave and non-modulated traveling-wave diffraction modulators at above-threshold pumping energies controlled by the ultrasonic waves. The experimental ruby laser (12 mm long and 1.4 mm in diameter) was pumped by two flashlamps in a double elliptic reflector. The external cavity consisted of two dielectric mirrors 80 and 99.5% reflective at 0.7 μ. The diffraction modulator was placed between the ruby rod and the 99.5%-reflective mirror so that the ultrasonic waves were propagated through its

Card 1/2 UDC: 621.378.32:621.376

Card 2/2

POPOV, Yu. V.

POPOV, Yu. V. - "The precise measurement of distance in terms of the time required for the dissemination light". Leningrad, 1955. State Order of Lenin Optical Inst imeni S. I. Vavilov. (Dissertation for the Degree of Candidate of Physicomathematical Sciences.)

SO: Knizhnaya Letopis' No. 46, 12 November 1955 Moscow

V

POPOV, Yu. V. Cand. Tech. Sci.

Dissertation: "Geometry of the Cutting Part of Tools."

22 Jan. 49

Moscow Machine Tool Inst. imeni I. V. Stalin

SO Vecheryaya Moskva
Sum 71

POPOV, Yu.V., inzhener.

Once more on improving administrative conditions to encourage inventing. Izobr. v SSSR 2 no.6:45 Je '57. (MLRA 10:8)
(Inventions) (Leningrad--Harbors)

POPOV, Yu. M. (Novosibirsk)

Use of mechanical air dispergators to increase the absorption of oxygen by sewage liquids. Vod. i san. tekh. no.6:32-33 Je '59. (MIRA 12:8)

(Sewage--Purification)

POPOV-CHERKASOV, Igor' Nikolayevich; SHABODO, I.L., red.; LABAZINA, S.N., red. izd-va; SHIBKOVA, R.Ye., tekhn. red.

[Work compensation for workers and employees in the forest economy of the U.S.S.R.] Voznagrazhdenie za trud rabochikh i sluzhashchikh v lesnom khoziaistve SSSR. Moskva, Goslesbumizdat, 1962. 162 p. (MIRA 16:2)
(Wages—Foresters)

POPOV-CHERKASOV, I.

Bonuses in the forest economy. Sots.trud no.8:126-128 Ag '57.
(MLRA 10:9)

1. Starshiy inzhener Glavnogo upravleniya lesnogo khozyaystva Ministerstva sel'skogo khozyaystva SSSR.
(Forests and forestry--Production standards)

POPOV-DEKATOV, N. P.

USSR/Soil Cultivation. Cultivation, Melioration, Erosion. J-5

Abs Jour: Ref Zhur-Biologiya, No 1, 1958, 1297.

Author : Popov-Dekatov, N.P.
Inst : All-Union Sci Res Inst of Forestry and the Mechanization of Forestry.
Title : Soil Erosion on Mountain Slopes.

Orig Pub: Sb.: rabot po lesn. kh-vu. Vses. n.-i. in-t lesovodstva i mekhaniz. lesn, kh-va, 1956, No 32, 99-102.

Abstract: When trees are felled and trailed on a 17-19° slope, the damage to the soil surface runs from 62-96%, and the quantity of soil removed from 139-596 cubic meters per hectare. Some measures for protecting the soil in lumber operations are indicated. The observations were made in various regions of the Northern Caucasus.

Card : 1/1 -8-

POPOV-IL'IN, B.P., prof.

Prostheses and orthopedics aid in Czechoslovakia. Ortop.travm. i protez. 18 no.4:77-80 Jl-Ag '57. (MIRA 11:1)

1. Direktor TSentral'nogo nauchno-issledovatel'skogo instituta protezirovaniya i protezostroyeniya Ministerstva sotsial'nogo obespecheniya RSFSR.
(ORTHOPEDICS
in Czech.)

POPOV-IL'IN, B. P. Dr. Med. Sci.

Dissertation: "Complex Method for the Treatment of Infintile Cerebral Paralysis." Second Moscow State Medical Inst. imeni I. V. Stalin, 24 Feb 47.

SO: Vechernyaya Moskva, Feb, 1947 (Project #17836)

POPOV-PRESNOV, G.I.

The teacher's story in geography lessons. Geog.v shkole 19 no.4: 25-31 Jl-Ag '56. (MLRA 9:10)
(Geography--Study and teaching)

POPOV-VVEDENSKIY, A. Ya. Cand Geograph Sci

Dissertaiton: "Short- and Long-Term Ice Forecasts for the White Sea and Southeastern Part of the Barents Sea."

26 April 49

Central Inst of Weather Forecasting

SO Vecheryaya Moskva
Sum 71

POPOV-VVEDENSKIY, A.Ya.

Unusual rise of water in the estuary of the Northern Dvina River.
Trudy GOIN no.49:79-85 '60. (MIRA 13:7)
(Northern Dvina Delta region—Hydrology)

POPOVA

"Concerning the Problem of the Immunizatory Properties of Milk From Animals Strongly Afflicted with Foot-and-Mouth Disease". Vestn. sovrem. veterin., 1930, No 12. (Bibliography from article Foot and Mouth Disease by A. L. Skcmorokhov, State Publishing House for Agricultural Literature, Moscow/ Leningrad, 1947.)

U-1625, 11 January 1952, p 483

POPOVA

"On Foot-and-Mouth Disease Therapy". Prakt. veterin., 1931, No 8.
(Bibliography from article Foot and Mouth Disease by A. L. Skomorokhov,
State Publishing House for Agricultural Literature, Moscow/Leningrad, 1947.)
SO: U-1625, 11 January 1952, p 483

POPOVA

"The Foot-and-Mouth-Disease Incitant". The symposium, Yashchur v sovremennom osveshchenii, Sel'khozgiz, 1932. (Bibliography from article Foot and Mouth Disease by A. L. Skomorokhov, State Publishing House for Agricultural Literature, Moscow/Leningrad, 1947.)

SO: U-1625, 11 January 1952, p 483

POPOVA, A., TSAKOVA, Z.

Treatment of virus hepatitis with cortansil and insulin.
Suvr. med. 14 no.11:14-19 '63.

POPOVA, A., kand. biolog. nauk

Downy mildew in the Ukraine. Zashch. rast. ot vred. i bol. 10 no.12:47 '65. (MIRA 19:1)

1. Ukrainskaya opytnaya stantsiya po tabaku i makhorke, Monastyriska, Ternopol'skoy oblasti.

POPOVA, A.

[56 centners of makhorka per hectare] 56 tsentnerov makhorki s gektara] [Moskva, Ministerstvo sel'skogo khoziaistva SSSR, 1955] (MLRA 9:12)
(Tobacco)

POPOVA, A.

Gelatine; Tanning

Interaction of gelatine with mineral tanning agents. Zhur.prikl.khim, 25 No. 1, 1952

SO: Monthly List of Russian Accessions, Library of Congress, August 1953, Uncl.

GRUMAZESCU, H., cercetator stiintific (Bucuresti); STANESCU, C., cercetator stiintific (Bucuresti); POPOVA, A., cercetator stiintific (Bucuresti); NEDELCU, E., cercetator stiintific (Bucuresti)

The Danube Delta. Natura Geografie 14 no.1:31-41 Ja-F '62.

POPOVA, A. (Bucuresti)

Western Samoa. Natura Geografie 14 no.1:81-82 Ja-F '62.

GRUMAZESCU, H., cercetator stiintific (Bucuresti); STANCESCU, C., cercetator stiintific (Bucuresti); POPOVA, A., cercetatoara stiintifica (Bucuresti); NEDELCU, E., cercetator stiintific (Bucuresti)

The Danube Delta. Natura Geografie 14 no.1:31-41 Ja-F '62.

POPOVA, A. (Bucuresti); ALEXANDRU, M. (Bucuresti)

"Palynology in the U.S.S.R." by M.I. Neistadt. Reviewed by A. Popova, M. Alexandru. Natura Geografie 14 no.6:85-86 N-D '62.

FOFOVA, A.

Gelatine; Tanning

Interaction of gelatine with mineral tanning agents. Zhur. prikl. khim. 25 No. 1, 1952

Monthly List of Russian Accessions, Library of Congress, August, 1952. UNCLASSIFIED.

POPOVA, A.,
KULIKOV, V., Mikrobiologiya 2, 260-5 91933)

POPOVA, A.

Active preparation. Za rul. no.10:3 O '57. (MIRA 10:11)
(Automobile drivers)

PANAIOTOV, P.; MANOLOVA, N.; TODOROV, M.; POPOVA, A.

Contribution to the problem of the agglutinated virus bacteria reaction in epidemic hepatitis. Izv biol med. BAN 3 no.2:107-110 '59.
(EEAI 10:4)

1. Mikrobiologicheski institut pri BAN
(AGGLUTINATION)
(VIRUSES)
(BACTERIA)
(HEPATITIS, INFECTIOUS)

L 37832-66 RO

ACC NR: AP6028480 SOURCE CODE: BU/0011/65/018/011/1063/1066

AUTHOR: Popova, A.

ORG: Institute of Physiology, BAN

TITLE: Binding of phenothiazine and related drugs by acid mucopolysaccharides in cell models

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 11, 1965, 1063-1066

TOPIC TAGS: mouse, drug effect, cytology, animal physiology, dye chemical

ABSTRACT: The possibility that a series of phenothiazines and related drugs can be bound by acid mucopolysaccharides - heparin and chondroitin sulfates - on the basis of the displacement of metachromatically bound dyes-toluidine blue and acridine orange in vitro was shown in a previous paper (Izv. In-ta po fiziologiya, BAN, 1965). The present study investigates the possible binding of phenothiazine and related drugs by acid mucopolysaccharides in the cell model. An analysis of the results of tests carried out on 73 male white mice described in this paper shows: 1) that using the luminescent technique one observes that a series of phenothiazine and related preparations combine with the acid mucopolysaccharide heparin at the level of mast cell granules from the hypodermic layer of the skin of a mouse; 2) the displacement of toluidine blue, metachromatically bound with the sulfate groups of the acid mucopolysaccharide occurs under the influence of phenothiazine and related drugs; and 3) the technique

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ACC NR: AP6028480

applied may serve as a convenient cytological model during the investigation of the possible release of biogenic amines by phenothiazine and related drugs. This paper was presented by Corresponding Member P. Nikolof on 14 August 1965. Orig. art. has: 2 figures. [Orig. art. in Eng.] [JPRS: 36,599]

SUB CODE: 06 / SUBM DATE: 14Aug65 / ORIG REF: 001 / OTH REF: 003

Card 2/2 mlp

L 37831-66 T

ACC NR: AP6028481 SOURCE CODE: BU/0011/65/018/011/1067/1069

AUTHOR: Popova, A.; Chakarov, E.

ORG: Institute of Physiology, BAN

TITLE: Possible utilization of certain phenothiazine drugs in vital fluorescent staining of mitochondria

SOURCE: Bulgarska akademiya na naukite. Doklady, v. 18, no. 11, 1965, 1067-1069

TOPIC TAGS: drug effect, phosphorylation, enzyme, mouse, luminescence

ABSTRACT: Phenothiazine drugs are known to inhibit oxidative phosphorylation by upsetting the normal activity of some of its enzyme systems: diphosphopyridine nucleotide in its reduced form, cytochrome C reductase, and cytochrome oxidase. These processes occur in the mitochondrial structures of the cell. In the present study the authors investigated, using 45 male white mice, the luminescent properties of phenothiazine drugs. An analysis of the results shows that phenothiazine preparations Largactil and Randolectil can be fixed at the mitochondrial level and that they can thus be used for the luminescent vital staining of mitochondria. This paper was presented by Corresponding Member P. Nikolov on 14 August 1965. Orig. art. has: 2 figures. [Orig. art. in Eng.] [JPRS: 36,592]

SUB CODE: 06 / SUBM DATE: 14Aug65 / ORIG REF: 001 / SOV REF: 001
OTH REF: 006

Card 1/1

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BULGARIA

POPOVA, A., Institute of Physiology, Bulgarian Academy of Sciences

"Model Study of the Binding of Phenothiazine Drugs with Heparin and Chondroitin Sulfates"

Sofia, Doklady Bolgarskoy Akademii Nauk, Vol 19, No 1, 1966, pp 77-80

Abstract: /English article/ Acid mucopolysaccharides, which are among the most widespread biogenic polyelectrolytes, are polymers possessing the properties of cation exchangers. Phenothiazine drugs, which have won wide application in the past decade due to their varied pharmacological properties, are substances about whose participation in certain links of biochemical processes little is known. Consequently, the author carried out studies using the models devised by R. Jaques and K. Kuettner (Helv. physiol. et pharmacol. acta, 19, 1961, 335-343) and found that 1) under the influence of the phenothiazine drugs on metachromatically stained filter paper a more or less intensive displacement of the metachromatically bound dye is observed; 2) the results obtained by means of paper chromatography are approximately similar to those obtained above as regards the degree of the toluidine blue displacement from the metachromatically stained strips; 3) phenothiazine drugs displace the metachromatically bound dye - toluidine blue and acridine orange from the stained cartilage discs and, depending on the intensity of the displaced diffused dye in the ambient liquid, they can be arranged in the

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